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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,505	09/28/2004	William James McMahon	GRH0106PUSA	4032

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BROOKS KUSHMAN P.C.
1000 TOWN CENTER
TWENTY-SECOND FLOOR
SOUTHFIELD, MI 48075

EXAMINER	
LEE, RIP A	

ART UNIT	PAPER NUMBER
1713	

DATE MAILED: 11/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

C

Office Action Summary	Application No.	Applicant(s)	
	10/509,505	MCMAHON ET AL.	
	Examiner	Art Unit	
	Rip A. Lee	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12,15,16,18-22,24-43,45-58,60-64 and 66-83* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12, 15, 16, 18-22, 24-43, 45-58, 60-64 and 66-83* is/are rejected.

7)☒ Claim(s) *2-5, 8, 9, 11, 15, 24-27, 30, 32, 38-41, 43, 46, 48-51, 53-55, 57, 63, 66, 68-71, 75, 77-80 and 83* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12-23-2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 2, 11, 24, 25, 38, 41, 48-50, 53, 55, 57, 63, 66, 68, 75, 79, and 80 are objected to because of the following informalities: When materials are so related as to constitute a proper Markush group, they may be recited as, "wherein R is a material selected from the group consisting of A, B, C, and D," or "wherein R is A, B, C, or D." Alternatively, one may use the construction, "selected from A, B, C, or D." See MPEP § 2173.05(h). The examiner also suggests use of "and mixtures thereof" in the claims. Appropriate corrections are required.

2. Claim 3 is objected to because of the following informalities: It is not clear what is meant by the term "butylene (co)polymer." Since claims are drawn to copolymers of ethylene with a comonomer, use of "(co)" in "butylene (co)polymer" is superfluous, and the term may be written simply as "butylene copolymer." Furthermore, it is not clear what the difference between "butylene (co)polymer" and "ethylene-butylene copolymer" is since all polymers of the invention are limited to ethylene-based copolymers. The entire portion of the claim starting from "a copolymer or terpolymer of ethylene...or vinyl acetate (EVA)" is not written sufficient clarity such that one may determine which species are being claimed. Applicants are encouraged to spend more time to write out the specific types of polymer rather than reciting all contemplated embodiments in a single phrase. Note that this portion of the claim also violates rules for Markush group construction (*supra*). Appropriate corrections are required.

3. Claim 4 is objected to because of the following informalities: It is not clear what is meant by the term "butylene (co)polymer" because comonomers other than the requisite ethylene is not indicated by the term. Furthermore, the terms "polybutylene" and "polyisobutylene," imply homopolymers, and thus, it is not clear what is encompassed by the term "butylene (co)polymer." Appropriate corrections are required.

4. Claim 5 is objected to because of the following informalities: Replace "catalyst" with "catalyzed" or "catalysed." Appropriate correction is required.

5. Claim 8 is objected to because of the following informalities: There is insufficient antecedent basis for the term "the grafted ethylene (co)polymer." See MPEP § 2173.05(e). Appropriate correction is required.

6. Claim 9 is objected to because of the following informalities: Replace "LLDPE" with "LLDPE-MAH." The term "PP-MAH" does not limit further the subject matter of claim 1 because polypropylene is not an "ethylene (co)polymer." Appropriate corrections are required.

7. Claims 15, 24, 25, 26, 32, and 46 are objected to because of the following informalities: The terms "at least about," "up to about," and "greater than about" are vague since it is not clear where the lower and upper bound of the recited ranges actually lie. See MPEP § 2173.05(b)(A). Appropriate corrections are required.

8. Claim 25 is objected to because of the following informalities: Replace "octane" with "octene." Appropriate correction is required.

9. Claim 27 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim, or amend the claim to place the claim in proper dependent form, or rewrite the claim in independent form. The claim recites a range of 9-30 wt %, which lies outside the 38+ wt % range recited in claim 25.

10. Claim 30 is objected to because of the following informalities: Use of the term "particle(s)" is unclear. There is little reason to believe that the filler is a single particle. Appropriate correction is required.

11. Claim 32 is objected to because of the following informalities: Applicants are encouraged to select a particular dimension to characterize the claimed filler. Appropriate correction is required.

12. Claims 34, 35, and 46 are objected to because of the following informalities: Please replace "intercalatent" with "intercalant." Appropriate corrections are required.

13. Claim 39 is objected to because of the following informalities: Replace "ammonium cation" with "ammonium salt." Appropriate correction is required.

14. Claim 40 is objected to because of the following informalities: The syntax of the claim is poor; please rewrite as "...nanofiller is a natural or synthetic mineral or clay that has been intercalated with ionic or polar substances." Appropriate correction is required.

15. Claim 43 is objected to because of the following informalities: Please replace "weigh" with "weight." Appropriate correction is required.

16. Claim 50 is objected to because of the following informalities: It is not clear what is meant by the term "magnesium calcium carbonate." Appropriate correction is required.

17. Claim 51 is objected to because of the following informalities: Replace "aluminum and/or" with "aluminum hydroxide or." Appropriate correction is required.

18. Claim 54 is objected to because of the following informalities: It is not clear whether reacting silane with nanofiller (in the role coupling agent) constitutes "grafting," as recited. Also, it would not be clear why peroxide is needed (as per dependent claims 61-64) to accomplish this reaction. Appropriate correction is required.

19. Claim 57 is objected to because of the following informalities: Please use the following terms: vinyl trimethoxysilane, vinyl triethoxysilane, vinyl dimethoxymethylsilane, gamma-methacryloyloxypropyl trimethoxysilane. The term "vinyl-tris-methoxy-ethoxy-silane" is incorrect since the silicon atom would be pentavalent. Appropriate corrections are required.

20. Claims 69, 70, 77, and 78are objected to because of the following informalities: Use of "exfoliating and/or delaminating" is superfluous since it is well appreciated in the art that the terms are synonymous. Please select one term. Appropriate corrections are required.

21. Claim 70 is objected to because of the following informalities: It is not clear whether reacting silane with nanofiller (in the role coupling agent) constitutes "grafting," as recited. It would not be clear why peroxide is needed (as per dependent claims 71 and 72) to accomplish this reaction. Appropriate correction is required.

22. Claim 71 is objected to because of the following informalities: It is not clear how this claim limits further the subject matter of claim 70. Clearly, grafting requires treatment of material with said organic silane. Appropriate correction is required.

23. Claim 83 is objected to because of the following informalities: Please delete "either" in line 2 of the claim. Appropriate correction is required.

24. The examiner notes that claims 4, 16, 18, 19, and 26-28 are conditional claims that simply describe further Markush group elements in the claims from which they depend, however, there is no indication in these claims that the recited items are actually present in the claimed composition. For instance, claim 3 recites a list of materials that one may use as the ethylene (co)polymer. Claim 16, which depends from claim 3, indicates that where ethylene-propylene copolymer is selected from the Markush group, said copolymer is to have an ethylene content of 10-99.9 wt %. However, claim 16 does not state specifically that the ethylene (co)polymer of the claimed composition *is* an ethylene-propylene copolymer. The consequence is that claim 16 is subsumed under the rejection over prior art applied to any of the other Markush elements of claim 3. The examiner suggests rewriting claim 16 as "in which the ethylene (co)polymer is an ethylene-propylene copolymer having an ethylene content of about 10-about 99.9 % by weight." The line of reasoning applies to the remaining claims in the above list.

Claim Rejections - 35 USC § 112

25. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

26. Claims 1-12, 15, 16, 18-22, 24-43, 45-58, 60-64, 66-83 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Use of "and/or" in independent claims 1 and 69, as well as in dependent claim 29, renders the claims unclear. A crosslinkable material and a crosslinked material represent two chemically distinct entities, and therefore, it is not clear which embodiment is actually being claimed. Also, if a material has been crosslinked, the description "crosslinkable" hardly applies, unless Applicants contemplate some abstract embodiment in which the crosslinked material is to be further crosslinked. It is noted further that an embodiment containing a crosslinkable composition/(co)polymer and a crosslinked composition/(co)polymer would represent a blend of materials. The examiner has turned to the specification for guidance, and there appears to be little support for preparation of blends in the disclosure. All dependent claims are subsumed under the rejection.

27. Claims 12, 15, 22, and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 12 and 15 recite a (co)polymer with polar group(s) as part of the total (co)polymer. The meaning of the claim as written is unclear whether Applicants intend to quantify the polar group(s) content in said (co)polymer or whether the claim is drawn to a mixture or blend of polymers. In the latter case, the identity of the remaining material that constitutes the "total (co)polymer" remains unclear. Claim 22 is vague since it is not clear what is actually being contemplated. It appears that the claim is drawn to a blend of materials, however, it could be construed to be drawn to a single material with elastomeric and plastomeric sections. Since the term "(co)polymer" is not defined to include such an embodiment, the subject matter of the claim remains unclear. Claim 29 is indefinite because the identity of the remaining material that constitutes the "total (co)polymer" remains unclear.

28. Claim 42 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim contains trademark/trade names Cloisite, Nanofil, Tixogel, and Kunipia. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph.

See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe a source of clays and, accordingly, the identification/description is indefinite.

29. Claims 69-71 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Use of "and/or" to describe the process renders the claims indefinite because it is not clear which steps are actually being performed in the claimed process.

30. Claim 76 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim is incomplete since it is not clear what happens after (co)polymer and nanofiller are pre-mixed. If these materials are pre-mixed, they are necessarily added simultaneously, so the phrase "pre-mixed or added simultaneously" does not make sense. Also, if materials are added sequentially, they are necessarily added separately, and *vice versa*. Use of "and/or" to describe the process renders the claims indefinite because it is not clear which steps are actually being performed in the claimed process.

31. Claim 79 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 79 suffers the same flaws noted for claim 76.

Claim Rejections - 35 USC § 102

32. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim Rejections - 35 USC § 103

33. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

34. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

35. Claims 1-4, 5-11, 16, 18, 19, 21, 24, 25-47, 54-64, 66-83 are rejected under 35 U.S.C. 102(b) as being anticipated by Karande *et al.* (U.S. 5,717,000).

Karande *et al.* discloses a composition comprising graft-modifed ethylene copolymers and organically modified clay (claims 1-6). See also listing of polymers in column 3 and line 4, especially metallocene catalyzed olefins (Affinity plastomers, Engage elastomers), and ethylene-octene copolymer having a density of 0.86-0.88 g/cm^3. Alternatively, the olefin polymer is EA, EVA, or EMA (claim 13). Claim 3 teaches maleic or vinyl trimethoxysilane (about 1.5 wt %) grafting of LDPE, LLDPE, EPDM; see also examples 1 and 2, where grafting is achieved *via* peroxides (0.12 % used in example 3). The inventors indicate that compositions of the invention preferably contain a blend non-functionalized polyolefin and functionalized polyolefin in a mass ratio of not greater than 10:1 (Example 3, col. 4, lines 44-50). Information of clay material is disclosed fully in incorporated reference WO 93/11190 (col. 3, line 11); clays have an average thickness of about 50 Å and a maximum thickness of 100 Å. Example 1 teaches use of montomorillonite clay intercalated with dimethyl dihydrogenated tallow ammonium salt (Claytone HY); see also claims 4 and 5. The clay filler is incorporated into the resin in an amount of about 3-5 wt % (see examples). A crosslinking coagent, trimethylol trimethacrylate, is incorporated into the composition, and apparently, further crosslinking, catalyzed by peroxide, occurs between vinyl groups (col. 6, line 40). Further additives are disclosed in column 5, lines 12-17. The initial product made from the composite is a sheet prepared by forming with heated roll mill (col. 6, line 45).

Regarding the process claims, Karande *et al.* discloses mixing copolymer with intercalated clay filler in a Banbury mixer (examples). When a foam is the desired end-product, the composition is extruded through a die to form the foam. In either process, shear is sufficiently high to effect delamination of the clay (col. 5, line 30). The desired dimension of the end-product is achieved by cutting (col. 6, line 55). The copolymer appears to be dry since it is tumble blended with graft monomer and peroxide (col. 6, line 12).

36. Claims 1-4, 5-11, 15, 16, 18, 19, 21, 24-47, 69-71, and 75-83 are rejected under 35 U.S.C. 102(b) as being anticipated by Qian *et al.* (U.S. 2001/0033924).

Qian *et al.* teaches a nanocomposite concentrate comprising 0.05-60 wt % onium-intercalated clay and 10-90 wt % of matrix polymer containing 95-99.98 wt % of polyolefin and 0.5-3 wt % of maelic anhydride grafted polylefin, as well as a second intercalant polymer (claim 4). The matrix polymer is polyethylene, polypropylene, ethylene vinyl acetate, ethylene-propylene copolymer, and the second intercalant polymer is polyethylene, ethylene vinyl acetate, maleic anhydride modified polyethylene, maleic anhydride modified polypropylene, and ethylene-propylene copolymer (claim 15). A more complete listing of polymer amenable for making inventive compositions is provided in Table I, and descriptions of these materials may be found on page 9. Use of plastomers (paragraph [0076]), EPDM terpolymer (paragraph [0078]), and polyolefin blends (Table II) is also contemplated.

A general process for making composites of the invention are disclosed in the examples, and although the effect of the invention is illustrated with polypropylene, the same methods apply equally to the claimed polymers, *i.e.*, polyethylene, ethylene vinyl acetate, and ethylene-propylene copolymer. In the simplest example, montmorillonite clay is intercalated with onium ion, and the clay is also reacted with silane coupling agent. The resulting intercalated filler is collected and freeze-dried. The intercalated filler is combined with polyolefin and maleic anhydride grafted polyolefin, and the composition was injection molded into shaped articles (example 3). Where a masterbatch is used, 70 pw of intercalated clay is mixed with 30 pw of maleic anhydride grafted polyolefin to give a concentrate of 57 wt % filler and 43 wt % of resin. The concentrate is powderized for further use. A working composition was prepared by extrusion of 8.6 pw of concentrate, 89.4 pw of polyolefin, and 2 pw of maleic anhydride grafted polyolefin was injection molded into test bars (example 6).

37. Claims 1-3, 5-11, 15, 16, 18, 19, 21, 22, 24-49, 69-72, and 75-83 are rejected under 35 U.S.C. 102(e) as being anticipated by Mehta *et al.* (U.S. 6,844,389).

Mehta *et al.* teaches polymer nanocomposites wherein the base resin is an ethylene homopolymer or ethylene copolymer (LDPE, LLDPE, HDPE, and metallocene prepared plastomers, the comonomer contents of which lie in the range of 0.1-45 wt %, as well as ethylene vinyl carboxylate copolymer such as ethylene-vinyl acetate (EVA) copolymer having a vinyl acetate content of 2-48 wt %, ethylene-ethylene acrylate, and ethylene-butyl acrylate); see col. 4, lines 20-40 and 54-59. Intercalated clay is commercially available Cloisite® clays that have been ion exchanged with onium salts such as 2M2HT (col. 5, lines 48+). Compatibilizing agent is also used to improve dispersion of filler. This component is prepared by grafting *via* peroxides about 0.1-8 wt % of maleic anhydride onto base resin such as polyethylene or ethylene vinyl acetate copolymer (vinyl acetate content of 3-35 wt %); see column 6, lines 5-20 and 59). Composites are prepared by dry blending concentrate pellets (12 parts) and base resin pellets (88 parts) followed by compounding in an extruder (col. 9, lines 47-52). Additional filler such as talc may be included (col. 8, line 37).

Example 1 shows a composite comprising HDPE, intercalated clay, and HDPE grafted with about 2 % maleic anhydride as the compatibilizer. A corresponding masterbatch is prepared with HDPE, clay containing 0.52 wt % silane coupling agent, and HDPE-*g*-MA. In examples 2 and 3, about 3 wt % of EVA (19 or 28 wt % vinyl acetate) is used as the compatibilizing agent. A LLDPE (ethylene/1-hexene copolymer) is used as the base resin in example 5, and examples 6-8 show use of ethylene/butene HDPE as the polyolefin matrix. In example 9, a masterbatch is prepared using 25 wt % of EVA, 25 wt % of HDPE, and 50 wt % of intercalated clay.

38. Claims 1-3, 10, 16, 18, 19, 21, 24, 25-51, 69, 76, 79-83 are rejected under 35 U.S.C. 102(b) as being anticipated by Kausch *et al.* (U.S. 6,414,070).

Kausch *et al.* discloses a nanocomposite composition comprising a composite layer made of polyethylene, ethylene-propylene copolymer rubber, ethylene-octene copolymer, ethylene-vinyl acetate copolymer, 2-20 wt % of organically modified clay, and one inorganic flame retardant material (claim 5). Intercalated clay is commercially available as Cloisite® and Rheox (col. 5, lines 27-32), and quaternary ammonium compounds for intercalation are disclosed in column 5, lines 8-24. The inorganic flame retardant is selected from aluminum hydroxide or magnesium hydroxide (col. 5, lines 56). Composites are prepared as sheets in a roll mill.

39. Claims 52 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kausch *et al.* in view of Tasaka *et al.* (U.S. 7,053,145).

Kausch *et al.* contemplates use of magnesium hydroxide as inorganic flame retardant, but there is no disclosure of coating said flame retardant. Tasaka *et al.* teaches flame retardant compositions comprising thermoplastic polyolefin resin and magnesium hydroxide as the flame retardant material. The inventors teach treatment of $Mg(OH)_2$ particles with a silane coupling agent or a fatty acid such as stearic acid; see discussion in column 12. As known to one of ordinary skill in the art, use of coupling agents allows for better dispersion of otherwise incompatible filler in a polyolefin matrix. One having ordinary skill in the art, having read both patents, would have found it obvious to treat inorganic flame retardant in Kausch *et al.* with coupling agents taught in Tasaka *et al.* in order to make a more homogeneous composition and thereby arrive at the subject matter of the instant claims. The combination is obvious because both references relate to methods of incorporating flame retardants into polyolefin compositions. Since the process has been demonstrated to work in Tasaka *et al.*, one having ordinary skill in the art would have expected modification of the prior art of Kausch *et al.* to work with a reasonable expectation of success.

40. Claims 1-3, 16, 18, 19, 21, 25-45, 69, 70, 75-77, and 81-83 are rejected under 35 U.S.C. 102(e) as being anticipated by Niyogi (U.S. 6,451,897).

Niyogi discloses a composition comprising a graft copolymer and 0.5-10 wt % of intercalated clay where the graft copolymer is derived from propylene-ethylene copolymer or a terpolymer of propylene and two olefins selected from the group consisting of ethylene and C_4-C_8 α-olefins, where the maximum amount of α-olefin comonomer is 20 % and wherein the maximum ethylene content is 5 wt % (claim 2). It follows that the propylene content is greater than 30 %.

41. Claims 12 and 22 rejected under 35 U.S.C. 103(a) as being unpatentable over Qian *et al.* The discussion of the disclosures of the prior art from paragraph 36 of this office action is incorporated here by reference. Qian *et al.* does not disclose use of masterbatch in an amount such that the content of maleic anhydride grafted copolymer in the final composite is 0.01 wt %, a recited. It is noted that the instant specification indicates this value as a lower limit of a range, and there is no showing of criticality of this particular amount. Qian *et al.* also does not disclose specifically use of an ethylene (co)polymer of about 40-50 wt % of plastomer and the remaining portion being elastomer. The patent teaches generally a series of thermoplastic polyolefin blends that are useful for preparing compositions of the invention in Table II, which includes plastomer/elastomer combinations (HDPE/EPR), and in paragraphs [0079]-[0081]. The exact amounts of plastomer to elastomer is not disclosed, however, it would have been obvious to one having ordinary skill in the art to arrive at the claimed 50-50 blend of two materials, and thereby arrive at the subject matter of the instant claims, especially in view of the fact that elastomer levels in thermoplastic polyolefins are well over 20 wt % (paragraph [0079]). Moreover, it would have been obvious to one having ordinary skill in the art to arrive at the weight percentages prescribed in claims 12 and 22 of the present invention since it has been deemed that the discovery of optimum values of result-effective variables in a known process is within the level of ordinary skill in the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (571)272-1114. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

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February 1, 2006

LING-SUI CHOI
PRIMARY EXAMINER